

Exploring AI Applications in Industry

Zhen Zhi

Founder and Chairman of China Industrial Internet Technology Co., Ltd.

Implementation Guidelines for the "AI + Manufacturing" Special Initiative

By 2027, the supply of key AI technologies will be secure and reliable, and China's industrial scale and empowerment level will rank among the top in the world.

Technical Breakthroughs: In-depth application of 3-5 general large models | Development of 100 high-quality datasets

Scenario Implementation: Promotion of 500 application scenarios | Coverage of key industries such as automotive and electronics

Enterprise Cultivation: Cultivate 2-3 global ecosystem enterprises | Establish 1,000 benchmark enterprises

Action Plan for Integrated Empowerment of Industrial Internet and Artificial Intelligence

By 2028, the level of integrated empowerment of the industrial internet and artificial intelligence will be significantly improved.

Network Upgrade: Promote the transformation of more than 50,000 enterprises and build a new type of industrial network that meets the low-latency requirements of AI

Data Activation: Establish data governance systems in 20 key industries and develop high-quality industrial datasets.

Ecosystem Collaboration: Cultivate solution providers, leverage large enterprises to support small and medium-sized ones, and achieve efficient allocation of industrial chain factors.

Deepen the Implementation of the "AI+" Initiative: Promote the large-scale application of artificial intelligence and foster a virtuous cycle between innovation and application.

Enhance security capabilities and accelerate the formation of a dynamic, agile, and multi-stakeholder collaborative governance framework for artificial intelligence.

General Large
Model Application

High-quality
Industrial Dataset

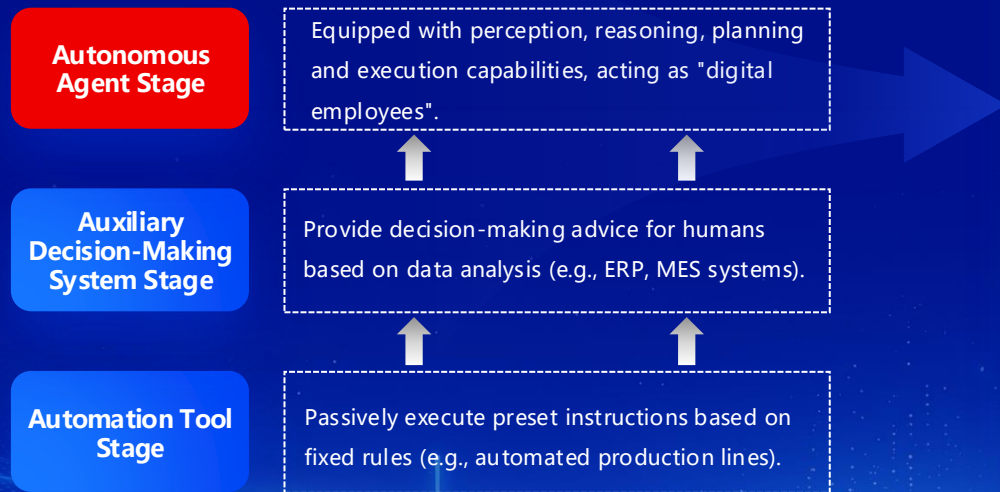
Three-in-One Policy System

Industrial Agent

Application Scene
Promotion

More Sustainable Dividend Release: Supported by systematic policies, we will provide long-term and stable strategic guidance and support for the in-depth integration of AI and the real economy.

Three Stages of Industrial AI Development



Core Characteristics of the Agent Era

Autonomy

Capable of independently perceiving the environment, analyzing problems, and taking actions.

Collaboration

Multiple agents can collaborate to accomplish complex tasks and achieve global optimization.

Evolutionary Capability

Capabilities are continuously iterated and improved through continuous learning.

2026: The First Year of Large-Scale Implementation of Industrial Agents With the maturity of large model technology, the reduction of computing power costs, and the accumulation of industrial scenario data, industrial agent technology is ready to move from pilot projects to large-scale applications.

Five Stages of Growth for Industrial Agents

L5 Adaptive

self-evolution, self-reconfiguration

L4 Coordination

multi-agent collaboration

L3 Intelligent

autonomous diagnostic optimization

L2 Execution

automation based on predefined rules

L1 Assistant

intelligent knowledge Q&A

No human assistance or intervention required, with performance exceeding human level.

Once multi-agent collaboration is realized, theoretically, all industrial sectors except core production execution and physical operation can be replaced by intelligent agents.

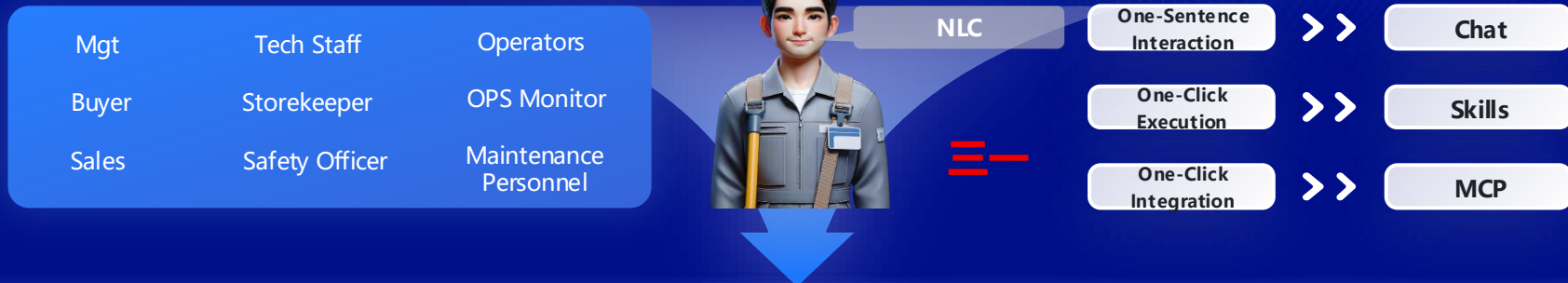
It is likely to directly improve efficiency in specific fields and generate tangible value returns, which is our current focus.

It can enhance safety, which traditional automation technologies can also achieve. However, it offers the potential for continuous upgrading and iteration.

It generally has no fundamental impact on core businesses. It can improve user efficiency and experience but cannot reduce costs. It belongs to enhanced applications.

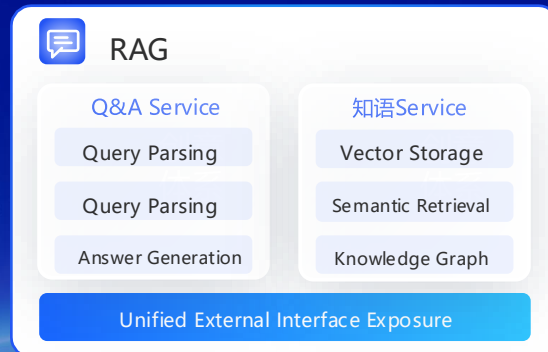
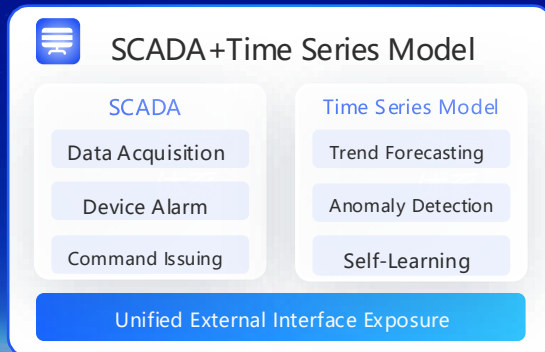
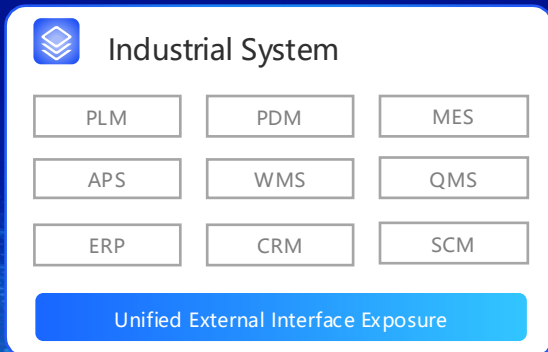
Four-Layer Core Architecture of Industrial AI





智工·Claw: Receive Instructions · Load Skills · Task Decomposition · Orchestrate MCP Calls · Aggregate Output

Return Result ↓ Skills ↑ Fetch Data/Operation Return Result ↓ Skills ↑ Fetch Data/Predict Return Result ↓ Skills ↑ Retrieve Knowledge



Online Learning Closed-Loop (Model Update Triggered by New Data)

智工·虾匠 Skills Panoramic View(108 Master)

R&D Design 10

Process Optimization
Drawing Parsing
Auto BOM
Flaw Detection
Material Selection
Material Substitution
Path Optimization
Test Analysis
Scheme Comparison
Cost Estimation



Marketing 9

Smart Order Review
Delivery Prediction
Auto Quote
Customer Insights
Auto Response
Dispatch Optimization
Demand Forecast
Satisfaction Analysis
Competitor Intel

Production 14

Production Scheduling
Auto OEE Calculation
Downtime Root Analysis
Real-Time Quality
Full Work Order Tracking
Changeover Reduction
Material Analysis
Productivity Analysis
Bottleneck Detection
Energy Analysis & Saving
Yield Fluctuation
Production Traceability
Load Optimization
Capacity Coordination

Management 7

Auto KPI
Auto Costing
Budget Alert
Approval Reminder
Policy Q&A
Auto Task Breakdown
Risk Alert

Equipment O&M 15

Equipment Health
Fault Prediction & Alert
Fault Diagnosis
Maintenance Planning
Inspection Dispatching
Smart Repair Knowledge
Spare Parts Alert
Parts Recommendation
Auto Repair Logging
Fault Trend Analysis
Lubrication Reminder
Efficiency Analysis
Expert Repair Guidance
Root Cause Analysis
Efficiency Analysis

Office 3

Smart Compliance
Smart Document
Smart Collaboration



Supply Chain 12

Procurement Calculation
Performance Evaluation
Inventory Analysis
Safety Stock Setting
Cost Optimization
Delivery Cycle Prediction
Efficiency Optimization
Material Traceability
Supply Chain Risk Alert
Auto In/Outbound
Rush Order Priority
Cost Calculation

Control& Embodied 5

Adaptive Control
Edge Control
Device Collaboration
Anomaly Intervention
Auto Drawing



Quality Control 11

Inspection Decision
In-Process Quality Alert
Finished Product Quality
Root Cause Analysis
Auto Report Generation
Quality Report
Complaint Classification
Inspection Matching
Quality Check
Defect Library Q&A
Critical Feature Analysis



Smart Equipment 5

Fault Prediction
Energy Control
Health Diagnosis
Custom Maintenance
Lifecycle AI



HSE 10

Hazard Identification
Auto Permit Generation
High-Risk Alert
Emission Monitoring
Emergency Plan Push
Auto Safety Test
Accident Analysis
HazMat Tracking
Compliance Check
Risk Assessment



General AI 7

Voice Command
Knowledge Q&A
Cross-System Query
Document Summary
Anomaly Detection
Knowledge Graph
Smart Scheduling



The Production Agent can collaborate with the Logistics Agent and the Energy Agent to achieve the integration of production flow, material flow, and energy flow, reaching global optimization.

Intelligent Process Control: Quality, Efficiency, Safety



6 major management dimensions

Enable visualization, control, and optimization of the production process. Achieve full-process management and control through large models, improving production efficiency, quality, and safety.

Production Intelligence ▶

R&D Application

Positioning: Focuses on the entire product lifecycle R&D, from requirements analysis, solution design, and verification to process transfer, achieving efficient collaboration between R&D and production, thereby shortening the R&D cycle.

NO.1

AI-Driven Scheduling

Positioning: Centers on the dynamic balance between orders and production capacity, from demand forecasting, resource allocation, and process scheduling to exception response, achieving optimal delivery and enhancing production responsiveness.

NO.2

Material Control

Positioning: Built around full-chain material control, from demand submission, inventory optimization, and kit assurance to distribution coordination, achieving transparent and controllable material flow while reducing inventory and stock-out risks.

NO.3

Process Mgmt

Positioning: Covers the entire process lifecycle management, from process documentation, parameter optimization, and production monitoring to knowledge retention, ensuring process compliance, stability, and efficient iteration.

NO.4

Production Mgmt

Positioning: Focuses on end-to-end production execution visibility, from work order release, process flow, and data collection to progress tracking, enabling transparent and refined control of the production process.

NO.5

Quality Mgmt

Positioning: Strengthens closed-loop quality control, from incoming inspection, in-process quality control, and finished product testing to quality traceability and root cause analysis, ensuring product quality and customer satisfaction.

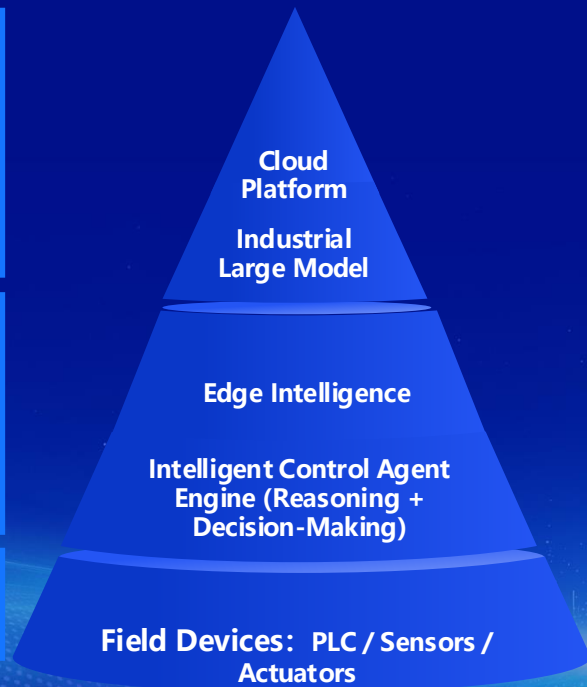
NO.6

From "Monitoring and Control" to "Prediction and Self-Healing," giving control systems a brain for autonomous decision-making.

Policy Update
& Learning

Adaptive
Commands

Real-Time
Data Stream



Possessing "Memory, Understanding, and Prediction" Capabilities

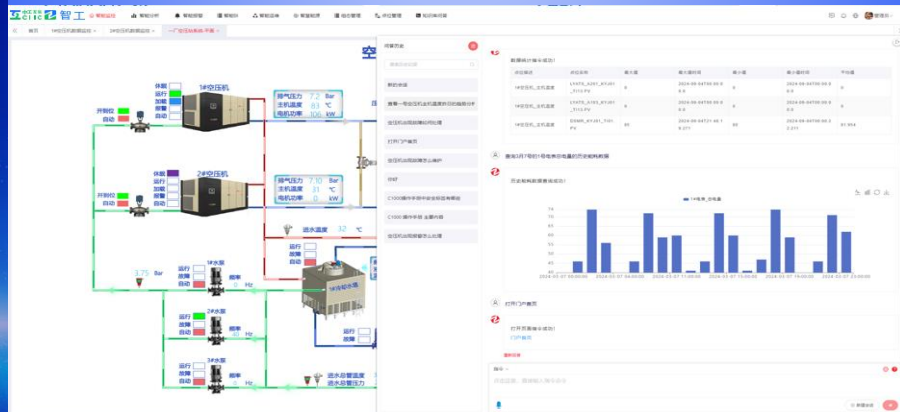
- ✓ Time Series Prediction: Predict future equipment status and process trends.
- ✓ Adaptive Parameter Tuning: Establish time-varying control models.
- ✓ Predictive Autonomous Control: Dynamically optimize multi-equipment collaborative control.
- ✓ Natural Language Interaction: Issue commands and inquiries via "conversational" interface.

Intelligent
Monitoring

Intelligent
Forecasting

Intelligent
Analysis

Intelligent
Operations



The "Intelligent Butler"

Positioning: Focuses on various core production/operational equipment.

Integrates equipment operation data, maintenance experience, and AI algorithms to act as an intelligent management carrier for the full lifecycle intelligent operation and maintenance of equipment, adapting to maintenance needs across multiple scenarios.



Intelligent Equipment Status Monitoring

Real-time collection of operational data (vibration, temperature, noise, energy consumption) from various equipment types. Precisely identify sub-healthy and abnormal equipment states, covering multiple equipment scenarios.



Fault Warning and Diagnosis

Based on the "Zhi Yu" industrial time-series large model, predict potential equipment failures in advance, pinpoint fault locations, analyze fault causes, and output targeted handling recommendations.



Full Lifecycle Operation and Maintenance Management

Maintenance Agent functions can automatically generate equipment inspection, maintenance, and repair plans, record the O&M process, and standardize and trace O&M procedures.



Operation and Maintenance Optimization and Iteration

Maintenance Agent functions can analyze system O&M data to optimize inspection frequencies and maintenance plans, reduce O&M costs, and extend equipment service life.

Core Value:

1. Ensure Safety: Reduce equipment failures and safety hazards, ensuring continuous and stable overall operations.
2. Reduce O&M Costs: Minimize unplanned repairs and excessive maintenance, lowering O&M labor and material costs.

AI+ Manufacturing



Transformer Equipment
Manufacturing Agent



金奥博

Civil Explosives
Process Agent



High-Speed Rail
Production Quality Agent

AI+ Energy



Cable Operation &
Inspection Agent



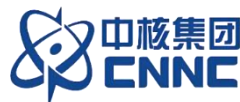
中国石油

Oilfield Prediction Agent



Process Warning Agent

AI+ Defense



Wastewater Treatment
Process Agent



中国兵器工业集团公司
CHINA NORTH INDUSTRIES GROUP CORPORATION

Production Line
Process Agent



中国兵器工业集团公司
CHINA NORTH INDUSTRIES GROUP CORPORATION

Warehouse Logistics Agent

AI+ Equipment



Air Compressor
Equipment Agent



中国石油

Drilling Equipment Agent



Laser Engraving
Equipment Agent

THANKS